UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,864	09/16/2003	Anthony Gerard Gibart	03AB089	3141

63122 7590 04/02/2007 ROCKWELL AUTOMATION, INC./BF ATTENTION: SUSAN M. DONAHUE, E-7F19 1201 SOUTH SECOND STREET MILWAUKEE, WI 53204	**EXAMINER** MASKULINSKI, MICHAEL C

ART UNIT	PAPER NUMBER
2113	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

		Application No.	Applicant(s)
Office Action Summary		10/663,864	GIBART ET AL.
		Examiner	**Art Unit**	
		Michael C. Maskulinski	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *42* is/are allowed.

6)☒ Claim(s) *1-5,7,8,10,11,18a,17b,18b,19,20,22-28,30,31,33,37,39, and 40* is/are rejected.

7)☒ Claim(s) *6,9,12-15,16a,17a,16b,21,29,32,34-36,38, and 41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/22/03*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

Non-Final Office Action

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

> Subject to the following paragraph, a claim in dependent form shall contain a reference to a
> claim previously set forth and then specify a further limitation of the subject matter claimed. A
> claim in dependent form shall be construed to incorporate by reference all the limitations of
> the claim to which it refers.

2.   Claim 23 is rejected under 35 U.S.C. 112, fourth paragraph, as failing to contain

a reference to a claim previously set forth. Claim 23 depends upon claim 23.

Claim Objections

3.   Claims 16-18 are objected to because of the following informalities. After claim

18, there is a second set of claims numbered 16-18. In other words there are two claim

16, 17, and 18. The Applicant has been charged for 45 claims even though the last

claim is claim 42, therefore, the Examiner suggests making the second set of claims

into claims 43, 44, and 45 respectfully.   Appropriate correction is required. For

purposes of examination, the Examiner will refer in the Office Action to the first set as

16a, 17a, and 18a; and the second set as 16b, 17b, and 18b.

Double Patenting

4.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees.   A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163
USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory
double patenting ground provided the conflicting application or patent either is shown to
be commonly owned with this application, or claims an invention made as a result of
activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a
terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with
37 CFR 3.73(b).

5.   Claims 1 and 24 are provisionally rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claim 1 of copending

Application No. 10/663,863. Although the conflicting claims are not identical, they are

not patentably distinct from each other because claim(s) 1 of application no. 10/663,863

contain(s) every element of claim(s) 1and 24 of the instant application and as such

anticipate(s) claim(s) of the instant application.

"A later patent claim is not patentably distinct from an earlier patent claim if the

later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at

896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting

because the claims at issue were obvious over claims in four prior art patents); In re

Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of

obviousness-type double patenting where a patent application claim to a genus is

anticipated by a patent claim to a species within that genus). " ELI LILLY AND

COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the

Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30,

2001).

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 101

6.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7.   Claims 22 and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 22 and 23 claim a recording medium on which a program is stored and variations thereof. These claims therefore are interpreted as recording a program per se. In order to overcome this rejection, language specifically stating the claim is limited to a computer program stored on a computer recordable medium executing on a computer.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   Claims 1-5, 7, 8, 10, 11, 18a, 17b, 18b, 19, 20, 24-28, 30, 31, 33, 37, 39, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Vandesteeg et al., U.S. Patent 6,631,476 B1.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the

invention "by another," or by an appropriate showing under 37 CFR 1.131.

Referring to claims 1 and 24:

a.   In column 6, lines 11-30, Vandesteeg et al. disclose that the standard

network protocol circuits transmit signals from the input module on the network to

be received at the controller through a similar standard network protocol circuits.

These signals are processed by the standard network protocol circuit and

provided to redundant safety protocol circuits, being similar to safety protocol

circuits described before (A safety controller comprising: a primary and partner

independent controller communicating on a communication bus).

b.   In column 6, lines 31-37, Vandesteeg et al. disclose that output module 16

may receive output data through a standard network protocol circuits 44a and

44b being similar to standard network protocol circuits 36a and 36b and 38a and

38b. The standard network protocol circuits 44a and 44b provide the data to

safety protocol circuits 46a and 46b, which in turn provide them to redundant

controllers 48a and 48b (a communication interface for receiving safety program

information from a user to the primary controller).

c.   In column 6, lines 31-37, Vandesteeg et al. disclose that output module 16 may receive output data through a standard network protocol circuits 44a and 44b being similar to standard network protocol circuits 36a and 36b and 38a and 38b. The standard network protocol circuits 44a and 44b provide the data to safety protocol circuits 46a and 46b, which in turn provide them to redundant controllers 48a and 48b (a transfer program executable on the primary and partner controller to automatically load the safety program information received by the primary controller via the communications bus to the partner controller).

d.   In column 6, lines 41-49, Vandesteeg et al. disclose that the output signals may be connected to the actuator so that outputs must be enabled for the actuator to be powered. In this sense, a default safety state is produced (of no power to the actuator) if there is an inconsistency between the signals received by processors 48a and 48b. A change in the wiring to parallel configurations could create a safety state where the actuator is actuated unless both signals received by processors 48a and 48b are not enabled (and a synchronization program executable by the primary and partner controller to execute the safety program information on the primary and partner controller and compares execution of the safety program information and to enter a safety state when this execution differs).

Referring to claims 2 and 25, in column 10, lines 46-51, Vandesteeg et al. disclose that the purpose of the start-up portion of the configuration is to prevent erroneous connections from being opened between: (1) devices in the safety system

and other erroneous devices in the safety system, and (2) devices in the safety system

and other devices not in the safety system in a mixed system (wherein the

communication interface confirms the existence of the partner controller having the

transfer and synchronization program and receives safety program information only

when the confirmed partner controller is communicating with the primary controller on

the communications bus).

Referring to claims 3 and 26, in column 6, lines 41-49, Vandesteeg et al. disclose

that the output signals may be connected to the actuator so that outputs must be

enabled for the actuator to be powered. In this sense, a default safety state is produced

(of no power to the actuator) if there is an inconsistency between the signals received

by processors 48a and 48b. A change in the wiring to parallel configurations could

create a safety state where the actuator is actuated unless both signals received by

processors 48a and 48b are not enabled (wherein the safety program information

executes to generate outputs to be used to control an external device and wherein the

synchronization program compares execution of the safety program information by

comparing outputs generated by the primary and partner controller executing the safety

program information).

Referring to claims 4 and 27, in column 12, lines 3-8, Vandesteeg et al. disclose

that the data sent in the message is compared to the data of the acknowledgement

message. If there is a match, then the program proceeds to loop until the periodic timer

has expired, and then proceeds to prepare a new message (wherein the safety program

information is executed repeatedly and wherein the comparison of the outputs is

performed at the conclusion of each repeated execution prior to outputting of the outputs to the external device).

Referring to claims 5 and 28, in column 8, lines 34-43, Vandesteeg et al. disclose that depending on the network, the network header and footer may include a CRC code and sequence count and other similar safety error detection data operating redundantly with the safety error detection data (wherein the safety program information executes to generate values of internal variables and wherein the synchronization program compares execution of the safety program information by comparing values of internal variables generated by the primary and partner controller executing the safety program information).

Referring to claims 7 and 30, in column 8, lines 45-60, Vandesteeg et al. disclose that the safety-network protocol also includes a configuration step that ensures proper communication under a connected messaging scheme (wherein the transfer program transfers the safety program information from the primary controller to the partner controller and receives an acknowledgement from the partner controller to the primary controller indicating that the transfer was complete and correct).

Referring to claims 8 and 31, in column 12, lines 3-8, Vandesteeg et al. disclose that the data sent in the message is compared to the data of the acknowledgement message. If there is a match, then the program proceeds to loop until the periodic timer has expired, and then proceeds to prepare a new message (wherein the transfer program transfers the state program information in portions and receives an acknowledgement for each portion).

Referring to claims 10 and 33, in column 7, lines 50-67 continued column 8, lines 1-9, Vandesteeg et al. disclose a dual level encapsulation for sending standard network protocol data and safety-protocol data (wherein the communication interface also receives standard program information and wherein the safety program information holds an identification value indicating that it is part of a safety application and wherein the transfer program checks for this identification value to automatically load only the safety program information received by the primary controller via the communications bus to the partner controller).

Referring to claim 11, in column 7, lines 5-13, Vandesteeg et al. disclose that the specialized redundant input module may be replaced with two standard input modules holding the equivalent of previously described interface circuitry, microcontroller, safety protocol circuit and standard network protocol circuit. In this case, the operation of safety protocol circuits 32a and 32b are implemented in the firmware of the microcontrollers 30a and 30b and effected via messages communicated on the network 15 rather than the internal bus 34 (wherein the primary and partner controllers are contained in independent housings separately attachable to an intercommunication bus).

Referring to claims 18a and 37, in column 2, lines 39-45, Vandesteeg et al. disclose data, including a given received control signal, is transmitted on the connections from the logical message producers to the logical message consumers and after receipt of uncorrupted data at each logical message consumer, transmitting reply data including the given received control signal on the connection to the logical

message producers (wherein the safety program information is variables used by a safety program).

Referring to claims 17b and 39, in column 2, lines 39-45, Vandesteeg et al. disclose data, including a given received control signal, is transmitted on the connections from the logical message producers to the logical message consumers and after receipt of uncorrupted data at each logical message consumer, transmitting reply data including the given received control signal on the connection to the logical message producers (wherein the safety program information is at least one value of a variable used by a safety program).

Referring to claim 18b, in column 7, lines 5-13, Vandesteeg et al. disclose that the specialized redundant input module may be replaced with two standard input modules holding the equivalent of previously described interface circuitry, microcontroller, safety protocol circuit and standard network protocol circuit. In this case, the operation of safety protocol circuits 32a and 32b are implemented in the firmware of the microcontrollers 30a and 30b and effected via messages communicated on the network 15 rather than the internal bus 34 (wherein the communication bus is a backplane having releasable electrical connectors allowing connection of the primary and partner independent controller to and from the backplane).

Referring to claim 19, in Figure 3, Vandesteeg et al. disclose that the communications bus is a serial communications network connecting the primary and partner controller.

Referring to claims 20 and 40:

a.   In column 7, lines 5-13, Vandesteeg et al. disclose that the specialized

redundant input module may be replaced with two standard input modules

holding the equivalent of previously described interface circuitry, microcontroller,

safety protocol circuit and standard network protocol circuit. In this case, the

operation of safety protocol circuits 32a and 32b are implemented in the firmware

of the microcontrollers 30a and 30b and effected via messages communicated

on the network 15 rather than the internal bus 34 (a primary controller including a

memory for holding program information; a communication interface for receiving

program information from a user). Further, in column 7, lines 50-67 continued

column 8, lines 1-9, Vandesteeg et al. disclose a dual level encapsulation for

sending standard network protocol data and safety-protocol data (the

programming information including an identifier indicating whether the

programming information is a safety task).

b.   In column 7, lines 50-67 continued column 8, lines 1-9, Vandesteeg et al.

disclose a dual level encapsulation for sending standard network protocol data

and safety-protocol data. If the data is safety data, then the safety protocol is

used (a loader program reading program information from the communication

interface and: (i) when the program information is a safety task, determining

whether a partner controller is in communication with the primary controller and if

a partner controller is present, loading the memory of the primary controller with

the program information and transmitting the program information to the partner

controller; and (ii) when the program information is a not safety task, loading the

memory of only the primary controller with the program information).

Allowable Subject Matter

2.   Claims 6, 9, 12-15, 16a, 17a, 16b, 21, 29, 32, 34-36, 38, and 41 are objected to

as being dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening

claims.

3.   Claims 22 and 23 would be allowable if rewritten or amended to overcome the

rejection(s) under 35 U.S.C. 112 and 35 U.S.C. 101, set forth in this Office action.

4.   Claim 42 is allowed.

5.   The following is a statement of reasons for the indication of allowable subject

matter: the prior art does not teach or reasonably suggest identifying the task as to one

of two levels of reliability a first level executable on a single processor and a second

level requiring execution in tandem on two processors having an ability to compare

execution to determine a fault in either of the two processors and to then enter a safety

state; and transmitting the tasks to the safety controller so that the safety controller can

automatically configure itself for the proper level of reliability or indicate a failure if that

level of reliability cannot be obtained.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. The cited prior art is related to safety systems and lockstep

controllers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Maskulinski whose telephone number is 571-272-3649. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael C Maskulinski
Examiner
Art Unit 2113